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Introduction

[Employee Earnings and Hours \(https://www.abs.gov.au/statistics/labour/earnings-and-work-hours/employee-earnings-and-hours-australia/may-2021\)](https://www.abs.gov.au/statistics/labour/earnings-and-work-hours/employee-earnings-and-hours-australia/may-2021) provides statistics on the composition and distribution of employee earnings, hours paid for and methods used to set employees' pay in Australia. It is one of a suite of ABS statistics providing information about earnings in Australia. The data are collected via the Survey of Employee Earnings and Hours (EEH), conducted biennially with a May reference period. It was postponed from May 2020 to May 2021, due to the labour market impacts and disruption from the first wave of the COVID-19 pandemic. The survey will continue its biennial cycle from 2021. Collecting data directly from employers (at the individual employee level) produces estimates that can be classified by a variety of both employee and employer characteristics.

Earnings statistics sourced from EEH are used to inform industrial relations and wages policies as well as in social and economic analysis. Occupation specific estimates are used in pay negotiations and wage compensation cases.

A key strength of EEH is that it allows for measures of hourly earnings to be derived for non-managerial employees and for managerial employees where there was a link between earnings and hours paid for. Hourly earnings measures are useful for comparisons between groups who may work different weekly hours.

The purpose of this article is to provide a guide for users of EEH by explaining:

- How the data are collected
- What statistics are produced
- Key data available
- Things to consider when using the data.

How the data are collected

EEH statistics are collected via a two-stage sample survey. In the first stage, approximately 8,100 businesses are selected from all employing businesses in Australia. In the second stage, selected employers choose a random sample of employees from their payroll. The number of employees selected in each business depends on the size of the business.

The sample selection is designed to be representative of all employees in Australia; it is not necessarily representative of all the employees in a specific business. The survey data are weighted at the employee and employer level to reflect the whole population of employees in scope for the survey.

The following data items are collected for approximately 52,000 employees:

- sex and age;
- rate of pay (adult, junior, apprentice/trainee or disability);
- whether permanent, fixed-term contract or casual;
- whether full-time or part-time;
- occupation title;
- main tasks or duties;
- hours paid for;
- amount and composition of weekly earnings;
- managerial/non-managerial status; and
- how pay was set - i.e. award, collective agreement, individual arrangement or owner manager of incorporated enterprise.

What statistics are produced?

As the information in EEH is collected from businesses at the individual employee level, it is possible to derive measures of distribution (e.g. medians, deciles, earnings ranges) and provide some information on individual characteristics of employees based on data items collected.

Earnings data are available for average weekly and hourly total and ordinary time cash earnings based on hours paid for during the reference pay period. This includes work done (e.g. piece rates or regular bonuses) and time on leave (e.g. annual or sick leave). Cash earnings are gross amounts (i.e. before tax) and include amounts salary sacrificed (where the employee chooses to forgo part of their wages and salaries in cash in return of goods and services). Irregular and infrequent payments, such as annual bonuses, payments in kind, leave loading, severance and termination payments are excluded from the estimates.

Data are also available for ordinary time and total hours paid for. Ordinary hours include award, standard or agreed hours of work, paid for at ordinary time rates. Total hours paid for is the sum of ordinary time hours paid for plus overtime hours paid for during the reference period, where overtime hours are those in excess of award, standard or agreed hours of work.

Mean or average measures are available for the following:

- Weekly cash earnings (ordinary time, overtime, and total);
- Weekly hours paid for (ordinary time, overtime, and total);
- Hourly cash earnings (ordinary time, overtime, and total); and
- Age (available from 2014 on).

When analysing earnings data, which has a skewed distribution with a long tail, the median is a better measure of 'central tendency' than the mean. Mean earnings are usually higher than the median earnings as relatively small numbers of highly paid employees can skew the mean higher. The larger the gap between mean and median earnings for a group of employees, the more uneven the distribution of earnings tends to be. A lower median indicates a greater proportion of employees have earnings below the mean, at the lower end of the distribution.

In addition to the individual employee characteristics, the data are available at employee level by characteristics of their employer including:

- state and territory;

- employer size (at state/territory level);
- industry; and
- sector.

The data item definitions used in EEH earnings statistics do not necessarily correspond with definitions used in employment legislation, awards and other instruments.

Further information on EEH data items can be found in the survey [methodology](https://www.abs.gov.au/methodologies/employee-earnings-and-hours-australia-methodology/may-2021) (<https://www.abs.gov.au/methodologies/employee-earnings-and-hours-australia-methodology/may-2021>).

Microdata

Microdata provides access to unit record files, which contain survey data at the employee level. Within a microdata file, each record or row of the dataset represents the information relating to one employee.

Microdata facilitates in-depth analysis and research for statistical purposes, to maximise the value of data for informing decisions of importance to Australia. Access to EEH survey microdata is available for a number of survey cycles through both TableBuilder and DataLab products. Users can interrogate and analyse the microdata for a variety of research applications. For further information, refer to [Microdata and TableBuilder: Employee Earnings and Hours, Australia](https://www.abs.gov.au/statistics/microdata-tablebuilder/available-microdata-tablebuilder/employee-earnings-and-hours-australia) (<https://www.abs.gov.au/statistics/microdata-tablebuilder/available-microdata-tablebuilder/employee-earnings-and-hours-australia>).

Key data available

This section provides information relating to some of the key output groupings to aid users in interpreting EEH statistics and choosing the most appropriate data for their needs.

All employees

All employees data provide estimates based upon every employee in scope for the survey.

Managerial employees

Managerial employees are those who have strategic responsibility in the conduct or operations of the organisation and/or are in charge of a significant number of employees. They are usually not entitled to overtime. Owner managers of incorporated enterprises are included in Managerial employees.

The Managerial employees category differs from the criteria used in the Australian and New

Zealand Standard Classification of Occupations (ANZSCO) coding of Managers. Although there is significant overlap between the two classifications, care should be taken when comparing estimates using the EEH Managerial employees category and the ANZSCO Managers major group as they are not the same.

For example, a photographer employed in his or her own incorporated photography business would be classified in the Professionals (not Managers) ANZSCO major group but considered a Managerial employee for EEH statistics.

Conversely, a travel agency manager within a franchise would be classified within the Managers ANZSCO major group but would be considered a Non-managerial employee in the EEH survey if they do not influence the strategic operations of the business.

Non-managerial employees

Employees who are not Managerial employees (as defined above) are included in the Non-managerial employees category. It includes non-managerial professionals and some employees with management or supervisory responsibilities.

Prior to the EEH 2014 survey cycle, hours paid for data was only collected for non-managerial employees and it was not possible to produce estimates of hourly rates for managerial employees. The non-managerial population has traditionally been used to analyse hourly earnings and hours paid for information for the largest possible group of employees.

From 2014 EEH onwards, hours paid for data has been requested for 'all employees' including managerial employees. Despite this change, hours paid for could not be collected for managerial employees where there was no relationship between earnings and hours worked. As a result, estimates for hours paid for and hourly cash earnings can now be produced for those employees where there is a link between earnings and hours paid for.

Full-time non-managerial employees paid at the adult rate

The 'full-time non-managerial employees paid at the adult rate' population is the most frequently used output category and provides a relatively homogenous employee group population.

By excluding part-time employees, managerial employees and those not paid at an adult rate it removes many of those paid unusually high or low amounts from the population of interest. Removing these extreme values can be of assistance when comparing pay rates between groups.

For example, the 'full-time non-managerial employees paid an adult rate' population may be

useful if you are looking to compare typical full-time rates of pay between two occupations such as teachers and nurses.

Rate of pay is collected in four categories: Adult; Junior; Apprentice or trainee; and Disability. Prior to the 2014 collection, the rate of pay classification was only divided into two categories: Adult and junior. For further information on this change, refer to the [Supplementary Analysis \(https://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/6306.0Main%20Features6May%202014?opendocument&tabname=Summary&prodno=6306.0&issue=May%202014&num=&view=\)](https://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/6306.0Main%20Features6May%202014?opendocument&tabname=Summary&prodno=6306.0&issue=May%202014&num=&view=) provided in the 2014 EEH release.

Methods of setting pay

The Method of setting pay (MOSP) identifies how an employee's pay is set. Methods are classified to one of the following categories: Award only; Collective agreement; Individual arrangement; or Owner manager of incorporated enterprise.

For the 2016 and 2018 EEH cycles, Award only and Collective agreement were collapsed for the All employee population for most of the Data Cubes published. Award only data can be more pertinent to the Non-managerial employee population as it excludes those upper level managers whose pay are generally set by instruments other than Awards. Award and Collective agreement data is released separately for the 2021 cycle.

Award only

Awards are legally enforceable determinations which set out minimum terms and conditions of employment, in addition to any legislated minimum terms. Decisions relating to awards and associated rates of pay are determined by a Federal or State industrial tribunal or authority. Awards may be applied for discrete industries or occupations and include a minimum rate of pay. Awards are periodically reviewed by the relevant governing body, where consultation and submissions from interested parties may be heard.

Employees that negotiate rates of pay in excess of the award rate are classified as paid by Collective agreement or Individual arrangement for EEH purposes.

Key requirements in determining an Award:

- Terms and conditions, including wage rises, decided independently from interested parties by a State or Federal industrial tribunal or authority.
- Employees are not classified to Award if they are paid more than the rate of pay specified in the award.

Collective agreement (also known as enterprise agreement)

A Collective agreement is a negotiated agreement made at the enterprise level between an employer and group of employees. Nominated representatives are able to negotiate for either party, such as a union representing the employees or an employer nominating a person in writing, such as a manager or an agent of an industrial relations law firm. A Collective agreement can be registered with an industrial tribunal and must include a set term of operation and nominated date of expiry. An expired Collective agreement will continue to apply until terminated by the industrial tribunal or replaced by the parties.

Key Requirements in determining a Collective agreement:

- Sets terms and conditions of employment through negotiated agreement by an employer and group of employees.
- Contains a set period of operation including a date of expiry but continues to apply until terminated or replaced.

Individual arrangement (also known as individual agreement)

Employees covered by an Individual arrangement will have their wages and conditions set on an individual basis. This can include informal arrangements, such as handshake or ad hoc arrangements, and also written contracts or arrangements that have not been lodged with an authority. An Individual arrangement can also be referred to as a common law contract.

Key Requirements in determining an Individual arrangement:

- One-on-one arrangement between employer and employee setting the wage rates and conditions of employment on an individual basis.
- Generally Individual arrangements offer a set of terms and conditions above relevant state or national awards. Arrangements set to the National Minimum Wage in conjunction with the national legislated minimum conditions (National Employment Standards) are recorded as Individual arrangements.

Owner manager of incorporated enterprise

Owner managers of incorporated enterprises determine their own rate of pay. An incorporated enterprise is a business entity which is registered as a separate legal entity to its members or owners (also known as a limited liability company). Owner managers of incorporated enterprises are presented separately in estimates by Method of setting pay.

Things to consider when using EEH data

Earnings

Earnings statistics are available on both an hourly and weekly basis.

It is important to note that the weekly earnings are affected not only by rate of pay, but also by diversity of employment arrangements, number of hours worked, the extent of part-time and casual employment, and the mix of industries and occupations.

Using hourly earnings removes the effects of longer or shorter working weeks when comparing earnings across full-time and part-time employment.

The types of earnings (ordinary time, overtime or total) are also important considerations when comparing estimates of earnings. Employees with high levels of overtime hours may have a total hourly rate (ordinary time plus overtime) that is considerably higher than employees that do not work overtime.

Movements in estimates over time

The primary purpose of the EEH survey is to provide estimates of earnings and hours paid for at a point in time. Care should be taken when comparing estimates between time periods, as changes in survey methods, concepts and data item definitions may have occurred to adapt to changes in the industrial relations environment and user requirements.

Changes in how data were collected from 2014 onwards

A number of enhancements were implemented for the 2014 EEH and continued in subsequent surveys. These include:

- The item Adult/Junior employee was modified, and further categories included. This new item 'rate of pay' has the following categories: Adult rate; Junior rate; Apprentice or Trainee rate; and Disability rate;
- The actual age of the employees was collected. Prior to this, the information on age was collected only as 'under 18 years', '18 years and under 21 years' and '21 years and over'; and
- Hours paid for data were requested for all employees, including Upper level managers and Owner managers of incorporated enterprises (collectively referred to as Managerial employees). Prior to this, hours paid for data was collected only for non-managerial employees. Despite this change, hours paid for could not be collected for Managerial employees where there was no relationship between earnings and hours. As a result, estimates of hours paid for and hourly cash earnings have only been produced for

employees with a link between earnings and hours.

Further information on these changes to the survey can be found in the EEH 2014 [Supplementary Analysis \(https://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/6306.0Main%20Features6May%202014?opendocument&tabname=Summary&prodno=6306.0&issue=May%202014&num=&view=\)](https://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/6306.0Main%20Features6May%202014?opendocument&tabname=Summary&prodno=6306.0&issue=May%202014&num=&view=)) page.

Changes in the conceptual treatment of Method of setting pay (MOSP) in 2016 and 2018

EEH 2016 incorporated an update to the conceptual categorisation of the Method of setting pay classification. As a result of this change, there was a shift from Collective agreement to Award only for some employees in some industries and states between EEH 2014 and EEH 2016.

In consultation with key expert stakeholders, a further refinement in the conceptual categorisation was undertaken and incorporated into EEH 2018. As a result, a sub-set of these employees who were considered to be paid on an Award only basis in 2016 would have been considered to have been paid according to a Collective agreement under the 2018 treatment. To more effectively support analysis of Methods of setting pay over time, indicative comparable estimates for 2016 are provided in Appendix 1 in the [2018 Feature Article \(https://www.abs.gov.au/articles/guide-understanding-employee-earnings-and-hours-statistics\)](https://www.abs.gov.au/articles/guide-understanding-employee-earnings-and-hours-statistics).

Sampling error

Sampling error is the difference between the estimates produced by taking a sample of employees, and the values that would have been produced if the information had been obtained from a census of all employers and all employees.

EEH survey estimates can be affected by sampling error (i.e. which employees are selected for each EEH sample). It is possible that what appears to be a movement between two time points may have arisen due to the difference in samples taken rather than real-world changes. Data users are strongly encouraged to use statistical techniques to infer whether or not a difference is likely to be real or a reflection of sampling variation.

The sampling error associated with any estimate can be estimated from the sample results. One measure of sampling error is given by the standard error. The standard error indicates the degree to which an estimate may vary from the value which would have been obtained from a census of all employers and employees (the 'true value'). There are about two chances in three that a sample estimate differs from the true value by less than one standard error, and about 19 chances in 20 that the difference will be less than two

standard errors.

To facilitate interpretation of EEH estimates, the ABS publishes standard errors. These are available in the Time Series Spreadsheets under the Data downloads section of the release. Any analysis of EEH data should be undertaken with the standard errors in mind. For more general information on sampling error, refer to the [Statistical Language - Measures of Error \(https://www.abs.gov.au/websitedbs/a3121120.nsf/home/statistical+language+-+measures+of+error#3-what-statistics-are-produced-\)](https://www.abs.gov.au/websitedbs/a3121120.nsf/home/statistical+language+-+measures+of+error#3-what-statistics-are-produced-) section of the ABS website.

An example of the use of the standard error is as follows. If the estimated average weekly total cash earnings for all employees paid by collective agreement is \$1,450.20, with a standard error of \$12.30, there would be about two chances in three that a full enumeration would have given an estimate in the range ($\$1,450.20 \pm \12.30 , i.e. \$1,437.90 to \$1,462.50) and about nineteen chances in twenty that it would be in the range ($\$1,450.20 \pm 2 \times \12.30 , i.e. \$1,425.60 to \$1,474.80).

Comparing EEH statistics with Average Weekly Earnings statistics

The Average Weekly Earnings (AWE) survey provides estimates of the level of average earnings at a point in time. The six-monthly estimates are used to provide a level benchmark against which a specific amount can be compared e.g. what an individual earns compared to the average. Average earnings estimates are available by state/territory, sex, industry and sector.

Compared with the EEH survey, the AWE survey provides more frequent but less detailed information on the composition and distribution of employee earnings. Unlike EEH, AWE data are collected at the business level: the AWE survey collects total/aggregate payroll data while the EEH survey collects detailed information about a sample of employees within the business. Collecting data at the aggregate level requires less resources than data at the employee level, but provides less flexibility and detail in the data it provides. Data obtained on the total earnings and total number of employees in the selected businesses are used to derive the mean, or average, earnings. As information on hours paid are not collected, AWE cannot provide hourly rates of pay. It can also only provide data for the limited number of groupings of employees (male / female, full-time adult and all employees) that are collected from businesses in the survey.

Compositional changes in the employee population (e.g. the mix between full-time and part-time employees, or the industries and/or occupations in which they work) can impact on the level of average weekly earnings. For example, if there is an increase in part-time employment then, all other things being equal, the average weekly earnings would be

expected to decrease. In contrast, the impact of these compositional changes is counted by referencing the hourly ordinary time earnings collected in EEH.

Although there are differences in concepts, survey design and methodology between the surveys, there is sufficient overlap such that EEH survey data can be considered a complement to AWE survey estimates (AWE is released earlier).

When comparing EEH data with AWE data, ensure the Average Weekly Cash Earnings series is used as these series are most closely aligned. These series include salary sacrificed amounts.

Comparisons of average earnings between males and females

Differences in earnings between males and females could be due to many factors, including different jobs within different occupations or industries, differences in full-time and part-time work, and also hours worked.

EEH statistics can be used for comparisons between male and female earnings, particularly within an industry and/or occupation group. EEH survey estimates of hourly ordinary time earnings account for two known compositional factors that impact wage comparisons: the number of hours paid for and working in occupations that regularly involve overtime. However, other compositional factors that influence earnings are not adjusted for in the EEH survey (e.g. qualifications, training, experience etc.). As such, EEH survey estimates are not suitable to answer the question of whether males and females receive 'equal pay for equal work'. No single source of information is able to answer this question in full.

Median data are also of interest when comparing male and female earnings as these measures are less influenced by extreme earnings. The OECD uses median information in its analysis of the gender pay gap which is available [here \(https://data.oecd.org/earnwage/gender-wage-gap.htm\)](https://data.oecd.org/earnwage/gender-wage-gap.htm).

Choosing the right data for analysis

When undertaking data analysis it is important to consider which datasets are the most appropriate for your purpose. The more factors taken into consideration when analysing data in general, the more robust such analysis will be.

EEH data are available for a range of population groups. Key output groupings are discussed above.

Alternative sources of earnings statistics

A number of data sources and publications on earnings and earnings-related data are available.

ABS statistics

	Designed to measure	Frequency/Type of data source	Overview	Benefits	Primary publication
Survey of Employee Earnings and Hours	Estimates of actual weekly and hourly earnings and the distribution of earnings.	Two-yearly business survey with employee component.	Provides data on the composition and distribution of employee earnings.	Data cross-classified by employer and employee characteristics. Distributional data available.	Employee Earnings and Hours, Australia
Survey of Average Weekly Earnings	Estimates of actual average weekly earnings.	Biannual business survey.	Provides frequent measure on average earnings, and represents the ABS headline measure of average earnings.	Time series data available (including seasonally adjusted and trend estimates).	Average Weekly Earnings, Australia
Characteristics of Employment	Estimates of actual earnings and the distribution of earnings.	Annual household survey.	Provides earnings data with a range of socio-demographic information. Provides details about the nature of employment.	Provides detailed socio-demographic information. Distributional data available.	Characteristics of Employment, Australia
Wage Price Index	Estimates of changes in the price of labour.	Quarterly business survey.	Provides indexes measuring changes in the earnings for a fixed representative selection of employee jobs in the Australian labour market.	Provides estimates of true wage inflation removing the effect of composition.	Wage Price Index, Australia
National Accounts	Estimates of compensation of employees.	Quarterly compilation based primarily on quarterly business surveys.	Provides estimates of earnings as a component of compensation of employees consistent within the Australian national accounting framework.	Broad measure of remuneration (includes, for example, annual bonuses and payment in kind).	Australian National Accounts: National Income, Expenditure and Product
Survey of Major Labour Costs	Labour costs for employers, including employee earnings.	Irregular (currently run every 6 years) business survey.	Provides estimates of employer labour costs, including employee earnings, payroll tax, fringe benefits tax, etc.	Provides earnings data in the broader context of labour costs. Data per employee also available.	Labour Costs, Australia
Survey of Employment and Earnings	Estimates of public sector employee jobs, and cash earnings from these.	Annual business survey.	Provides annual estimates of cash wages and salaries of public sector employees.	Data specifically collected from sample designed to enumerate public sector estimates. Data available by level of government.	Employment and Earnings, Public Sector, Australia
Quarterly Business Indicators Survey	Revenue, profits, inventory and wages paid by private sector businesses.	Quarterly business survey.	Provides frequent measure of aggregate private sector earnings	Time series data available. Data also separately available for profits of unincorporated enterprises.	Business Indicators, Australia

Non-ABS statistics

Household, Income and Labour Dynamics in Australia

The Household, Income and Labour Dynamics in Australia (HILDA) Survey is a longitudinal household-based study which began in 2001. Information about economic and subjective well-being, labour market dynamics and family dynamics is collected annually. The HILDA Survey was initiated, and is funded, by the Australian Government through the Department of Social Services. Responsibility for the design and management of the survey rests with the Melbourne Institute of Applied Economic and Social Research (University of Melbourne). Data collection is undertaken by a private research company.

Workplace Gender Equality Agency dataset

Under the Workplace Gender Equality Act 2012, non-public sector employers with 100 or more staff must report to the [Workplace Gender Equality Agency \(WGEA\)](https://www.wgea.gov.au/) (<https://www.wgea.gov.au/>) annually. Reported data are used to develop educational benchmark reports based on specific gender equality indicators. WGEA datasets are available on the Australian Government [data.gov.au](https://data.gov.au/dataset/ds-dga-4d35cd80-2538-4705-82f3-d0d18e823d98/details) (<https://data.gov.au/dataset/ds-dga-4d35cd80-2538-4705-82f3-d0d18e823d98/details>) portal.